



**State of Louisiana
Coastal Protection and Restoration Authority**

2017 Annual Inspection Report

for

Fritchie Marsh Restoration

State Project Number PO-06
Priority Project List 2

November 9, 2017
St. Tammany Parish

Prepared by:

Clay Worley, E.I.
Coastal Protection and Restoration Authority
New Orleans Regional Office
CERM, Suite 309
2045 Lakeshore Drive
New Orleans, LA 70122



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for
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(PO-06)**

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I. Introduction

The Fritchie Marsh Restoration Project (PO-06) project area contains intermediate and brackish marsh, and is located southeast of Slidell in St. Tammany Parish (Appendix A). The area is bounded by US Hwy 190 to the north, US Hwy 90 to the south and east, and LA Hwy 433 to the west and south.

II. Project Description and History

From 1956 to 1984, 2,260 acres (915-ha) of emergent marsh within the Fritchie Marsh project area were converted to open water, with the greatest loss occurring in the northern project area. This loss reflects a pattern of marsh deterioration from north to south due to a reduction of freshwater and sediment input into the northern part of the project area. Natural hydrologic patterns have been disrupted by the construction of the perimeter highways. These embankments isolate the marsh from the West Pearl River, and have restricted inflow of freshwater, nutrients, and sediment. Additionally, saltwater from Lake Pontchartrain enters the marsh through the W-14 canal and Little Lagoon during high tides and strong winds. As a result, the project converted from a predominantly fresh marsh in 1956 to a predominantly brackish marsh in 1990.

The objective of the Fritchie Marsh Restoration Project is to reduce marsh loss by restoring more natural hydrologic conditions in the project area through management of available freshwater. Specific objectives are (1) to increase freshwater flow and promote water exchange into the area from West Pearl River by enlarging the culvert at U.S. Highway 90 and by dredging portions of Salt Bayou, and (2) to increase freshwater flow into the northern project area by diverting flow from the W-14 canal.

The Fritchie Marsh Restoration Project was constructed in one phase beginning in October 2000 and completed in March 2001. The project has a 20-year economic life which began in March 2001.

The principal project features include:

- A 72-inch diameter by 136-foot long concrete culvert under U.S. Highway 90, rock riprap lining of the Salt Bayou channel bottom and pipe outlets, and installation of 308 linear feet of sheet piling to form a bulkhead.
- Dredging of approximately 5,300 linear feet of Salt Bayou.
- Installation of a weir in the W-14 canal. The weir consists of 108 linear feet of sheet pile with a 20-foot wide boat bay.
- Dredging approximately 400 linear feet of the W-14 diversion channel.

Other project features include:

- 5 water flow monitoring stations
- 2 staff gauges
- 4 continuous recorders



In August 2005, Hurricane Katrina passed directly over the Fritchie Marsh project area. The forces created by this storm caused significant damage to the marsh, but not to any of the project features. Large areas of marsh were converted to open water, whereas sections of sheared marsh were deposited into the natural bayous and canals creating a number of blockages. Existing breaches on the banks of Salt Bayou were enlarged and new breaches were created, which diverted water away from the natural conveyance channels. The previously established hydrology within the project area has been significantly altered.

Past Maintenance Projects

The warning signs and directional arrows at the W-14 weir were repaired in Spring 2015 due to weathering of the reflective surfaces and faded coloring. Eight (8) new sign faces and mounting hardware were purchased at a cost of \$2,195.99 and installed by CPRA personnel over a two-day field effort.

III. Inspection Purpose and Procedures

The purpose of the annual inspection of the Fritchie Marsh Restoration Project (PO-06) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommending corrective actions. Should it be determined that corrective actions are needed, CPRA shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan July 10, 2002). The annual inspection report also contains a summary of maintenance projects and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the project are outlined in Section II.

An inspection of the Fritchie Marsh Restoration Project (PO-06) was conducted on November 8, 2017 by Clay Worley and Barry Richard of CPRA, and Doug Baker from NRCS. Access to the project area was accomplished via a boat provided by CPRA.

IV. Inspection Results

Hwy 90 Culvert and Stone Revetment

The joint in the culvert on the dredged side of the bayou appeared to be experiencing some separation (Photos #4 & #5). The bank scour reported in previous inspections appeared to have progressed very little, even with the extremely high water experienced during the Spring 2016 flooding. This area deserves continued observation during future inspections.



Salt Bayou Dredging

The inspection team was not able to travel up Salt Bayou. An inspection in December 2015 determined that significant siltation of the bayou begins at approximately 4,500 feet downstream of the culvert and remains shallow for several thousand feet beyond the end of dredging at 5,300 feet downstream of the culvert. This condition appeared to be relatively unchanged. A steady flow of water was observed flowing into the project area (Photo #6).

W-14 Weir

The weir structure was mostly surrounded by aquatic vegetation, but the boat bay was navigable. The visible portion of the handrails appeared to be in good condition. The warning signs were in very good condition (Photo #1). No maintenance is required in this area at this time.

W-14 Diversion Channel Dredging

The channel inlet was filled in and unnavigable due to aquatic vegetation (Photo #2). Emergent aquatic vegetation was present in the channel outfall.

V. Conclusions

Over the life of the project, the goal of increasing distribution of fresh water into the surrounding marsh has been met, even though Hurricane Katrina changed the landscape of the project area significantly. There are currently several projects in various phases of development to re-establish emergent marsh habitat throughout the majority of the project area. Due to these projects, the St. Tammany Parish Government has commissioned a flow study to determine any additional drainage needs for the residents of the area. In performing this study, they will also analyze the PO-06 project features, and how they will impact any flow. As the project approaches the end of its 20 year life, the results of this effort will help influence the path forward.

VI. Recommendations

Continue to inspect the project features on an annual basis. Coordinate with resource agencies and gather data on potential upcoming projects within Fritchie Marsh area to assess potential impacts on Salt Bayou and project hydrology.

Immediate Repairs

- None at this time.

Programmed Maintenance

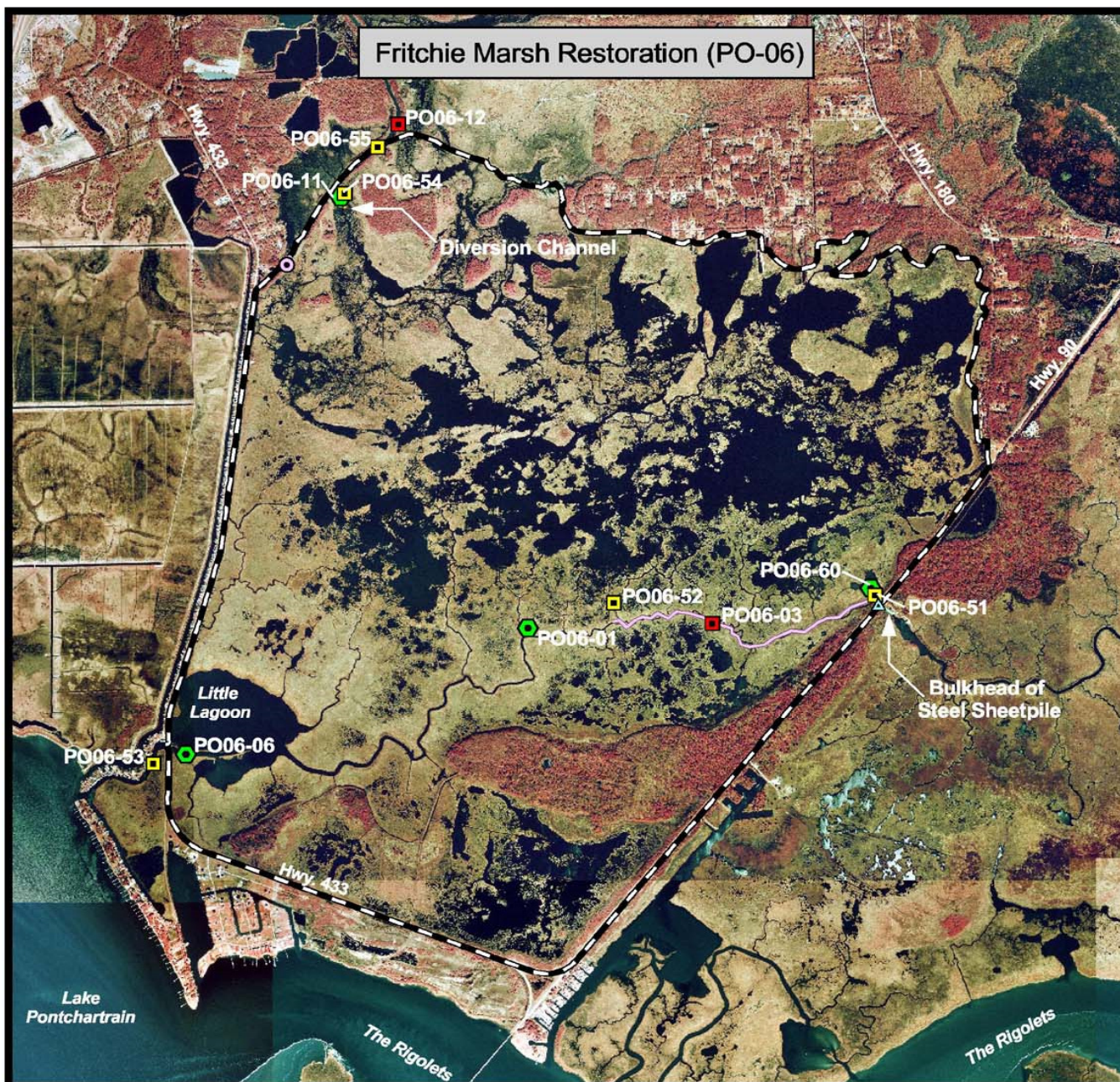
- None at this time.



Appendix A

Project Features Map

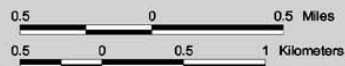
Fritchie Marsh Restoration (PO-06)



Data Source:
 U.S. Department of the Interior
 U.S. Geological Survey
 National Wetlands Research Center
 Coastal Restoration Field Station
 Baton Rouge, LA
 and
 Louisiana Department of Natural Resources
 Coastal Restoration Division
 Baton Rouge, LA

1998 DOQQ Imagery

Map Date: April 23, 2004
 Map ID: USGS-NWRC 2004-04-0148



LEGEND

- PO-06 Project Boundary
- 5300 ft. Dredge Area on Salt Bayou
- 400 ft. Dredge Area on the W-14
- Diversion Channel
- Bulkhead of Steel Sheetpile
- 72" Concrete Culvert
- Steel Sheetpile Weir with Boat Bay
- Water Flow Monitoring Stations
- Staff Gauge Only
- Continuous Recorder

Appendix B

Photographs

November 8, 2017



Photo 1: W-14 Weir and Warning Signs



Photo 2: W-14 Diversion Canal



Photo 3: Hwy. 90 Road Surface Above Culverts



Photo 4: Culverts Below Hwy. 90



Picture 5: Joint of Culvert



Photo 6: Salt Bayou Flowing into Project Area

Appendix C

Three Year Budget Projection

Fritchie Marsh Hydrologic Restoration (PO-06)

Federal Sponsor: NRCS

Construction Completed : March 6, 2001

PPL 2

Current Approved O&M Budget June 2009	Year 0 FY02	Year - 1 FY03	Year -2 FY04	Year -3 FY05	Year -4 FY06	Year -5 FY07	Year -6 FY08	Year -7 FY09	Year -8 FY10	Year -9 FY11	Year -10 FY12	Year -11 FY13	Year -12 FY14	Year -13 FY15	Year -14 FY16	Year -15 FY17	Year -16 FY18	Year - 17 FY19	Year -18 FY20	Year -19 FY21	Project Life Budget
State O&M																					\$225,211
Corps Admin																					\$0
Federal S&A																					\$0
Total																					\$225,211

Projected O&M Expenditures	Remaining Project Life				
Maintenance Inspection	\$4,428	\$4,543	\$4,661	\$4,782	\$18,415
General Maintenance					\$0
Surveys					\$0
Sign Replacement					\$0
Federal S&A					\$0
Maintenance/Rehabilitation					\$0
E&D					\$0
Construction					\$0
Construction Oversight					\$0
Total	\$4,428	\$4,543	\$4,661	\$4,782	\$18,415

O&M Expenditures from COE Lana Report	\$145,137
State O&M Expenditures not submitted for in-kind credit	\$0
Federal Sponsor MIPRs (if applicable)	\$0
Total Estimated O&M Expenditures (as of October 2017)	\$145,137

Current O&M Budget	\$225,211
Estimated O&M Expenditures	\$145,137
Remaining Available O&M Budget	\$80,074

Current Project Life Budget	\$225,211
Total Projected Project Life Budget	\$163,552
Project Life Budget Surplus (Shortfall)	\$61,659

Appendix D

Field Inspection Form

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: **PO-06 Fritchie Marsh**

Date of Inspection: 11/08/2017 Time: 10:00am

Structure No. n/a

Inspector(s): Worley (CPRA), Richard (CPRA), Baker (NRCS).

Structure Description: **HWY 90 Culvert & Salt Bayou Bulkhead**

Water Level Inside: n/a Outside: n/a

Type of Inspection: **Annual**

Weather Conditions: Cool, cloudy

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Handrails, Grating, Hardware, etc.	Good	None	None	1	No significant defects noted.
Signage, Supports	Very Good	None	None	1	Signs and timber support piles appeared to be in very good condition.
RipRap channel lining	Good	None		4	Good condition. Rip-rap covered by concrete debris on South bank.
W-14 Weir structure	See remarks	See remarks		1	Structure was mostly hidden by emergent vegetation; strong flow was visible in channel.
W-14 diversion channel dredge	Fair	None		2	Channel entrance is filled in and unnavigable due to aquatic vegetation. Emergent vegetation was present in outfall.
Salt Bayou dredging	See remarks	N/A		6	Salt Bayou was deep and unobstructed for about 4,500 feet downstream (marsh side) of culverts at US Hwy 90. Siltation was noted beginning at approx. Sta. 45+00 and continued southwest to Sta. 53+00.
72" Diameter culvert	Fair	None		4,5	Appeared to be some separation at joint; water appeared to be flowing freely through culvert.
HWY 90 road surface	Good	None		3	No significant change since last inspection.